REFERENCE DESIGN 443 INCLUDES: Tested Circuit, Schematic, BOM, Board Available

REP008: Dual-Band Front-End IC Tuned for CDMA, PCS, and AMPS at a Common 85MHz Low IF

Nov 01, 2000

Abstract: This reference design (RD) is for a dual-band, triple-mode front-end IC using only 85MHz IF centers for processing PCS, cellular CDMA, and cellular AMPS. The RD uses the MAX2323, a low-noise amplifier (LNA) with mixer, that is useful for TDMA, GSM, EDGE, and WCDMA applications.

Rapid Engineering Prototypes are real circuits that Maxim application engineers have built and measured in our labs. They can provide a starting point for new RF designs. They are not available as evaluation kits.

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Objective: To develop and measure this dual-band triple-mode front-end IC using only 85MHz IF centers for processing PCS, cellular CDMA, and cellular AMPS.

The MAX2323 offers a single-path output for cellular and PCS digital mixers. In this application, the object was to assess performance with a common low IF at 85.38MHz. The high IP2 performance of the PCS mixer combined with the rejection from the RF filter's band edge provided reasonable although not excellent 1/2 IF image rejection. This was an experimental prototype done to assess the limitations of the MAX2320, and the results were surprisingly good, even with a low IF at the PCS band.

The MAX2323 low-noise amplifier (LNA) plus mixer is designed for dual-band CDMA cellular-phone
handsets, but it can also be used in dual-band TDMA, GSM, EDGE, or WCDMA applications. It differs from its predecessor (the MAX2320) by adding a third "mid-gain" state for the cellular-band LNA that improves sensitivity switchover and hysteresis margin. It also comes in a smaller package (28-QFN) and offers increased third-order input intercept.

Schematic of the MAX2323 evaluation kit (PDF, 61kB)
Bill of materials, part 1
Bill of materials, part 2
Bill of materials, part 3

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<th>Related Parts</th>
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<td>MAX2323</td>
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More Information
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REFERENCE DESIGN 443, AN443, AN 443, APP443, Appnote443, Appnote 443
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